Exhibit 300: Capital Asset Plan and Business Case Summary

Part I: Summary Information And Justification (All Capital Assets)

Section A: Overview (All Capital Assets)

1. Date of Submission: 2010-03-17 15:20:25

2. Agency: 021

3. Bureau: 12

4. Name of this Investment: FAAXX504: En Route Automation Modernization (ERAM)

5. Unique Project (Investment) Identifier: 021-12-01-11-01-1150-00

6. What kind of investment will this be in FY 2011?: Mixed Life Cycle

- Planning
- Full Acquisition
- Operations and Maintenance
- Mixed Life Cycle
- Multi-Agency Collaboration

7. What was the first budget year this investment was submitted to OMB? *

8. Provide a brief summary and justification for this investment, including a brief description of how this closes in part or in whole an identified agency performance gap; this description may include links to relevant information which should include relevant GAO reports, and links to relevant findings of independent audits.

The En Route Automation Modernization (ERAM) program replaces the air traffic control automation system in Air Route Traffic Control Centers (ARTCCs). It includes: new system software and hardware (replaces the Host Computer System); Enhanced Backup Surveillance (EBUS) system (which replaces the Direct Access Radar Channel, the backup system to the Host Computer System); partial replacement of the display system infrastructure; tech refresh of the Radar Position Display Processor; and En Route Information Display System (ERIDS), which distributes information to controllers to improve productivity and efficiency. ERAM will enable improvements in airspace capacity, efficiency and safety (supports DOT/FAA Strategic Goals: Reduced Congestion, Safety, Greater Capacity; see Section I.D) that cannot be realized with the current 30-year-old system. It offers flexible routing options, provides safety alerts to prevent collisions and congestion, and enables controllers to better handle unplanned events. ERAM's enhanced infrastructure will support the evolution to the next generation air transportation system, and Automatic Dependent Surveillance-Broadcast support. ERAM is both in the control and evaluate phases of the CPIC process. EBUS and ERIDS are deployed and operational at all 20 ARTCCs. ERAM Release 1 (R1) has completed government acceptance at the William J. Hughes Technical Center, FAA Academy and the 20 ARTCCs with key site IOC occurring on 6/18/09. FY2010 focus: completing R1 deployment, deployment support for Release 2 (R2), maintenance support (hardware, software, logistics) of R1 and R2, software development and test support for Release 3 (R3). FY2011 focus: completing deployment of R2 at the remaining ARTCCs, deploying R3 at all ARTCCs, deployment support for R2 and R3, maintenance and 2nd-level engineering support (software, logistics) for R2 and R3. The ERAM team collaborates regularly with DOD and DHS, both of whom rely on FAA surveillance and aircraft tracking data to achieve their missions. The FAA executive decision-making body reviewed and approved the final program baseline for DME and O&M on 6/12/03. To date no JRC rebaseline decisions have been needed. Lifecycle costs for the ERAM were risk-adjusted as part of the work breakdown structure development, addition of risk dollars in selected areas, addition of a schedule risk adjustment for the full implementation of ERAM. Expected life cycle is 10 years after the last system deployment.

a. **Provide here the date of any approved rebaselining within the past year, the date for the most recent (or planned)alternatives analysis for this investment, and whether this investment has a risk management plan and risk register.**

9. Did the Agency's Executive/Investment Committee approve this request? *

a. **If "yes," what was the date of this approval?** *

10. Contact information of Program/Project Manager?

- **Name:** *
- **Phone Number:** *
- **Email:** *

11. What project management qualifications does the Project Manager have? (per FAC-P/PM)? *

- Project manager has been validated according to FAC-PMPM or DAWIA criteria as qualified for this investment.
- Project manager qualifications according to FAC-P/PM or DAWIA criteria is under review for this investment.
- Project manager assigned to investment, but does not meet requirements according to FAC-P/OM or DAWIA criteria.
- Project manager assigned but qualification status review has not yet started.
- No project manager has yet been assigned to this investment.

12. If this investment is a financial management system, then please fill out the following as reported in the most recent financial systems inventory (FMSI):

Financial management system name(s)	System acronym	Unique Project Identifier (UPI) number
*	*	*

a. **If this investment is a financial management system AND the investment is part of the core financial system then select the primary FFMIA compliance area that this investment addresses (choose only one):** *

- computer system security requirement;
- internal control system requirement;
- core financial system requirement according to FSIO standards;
- Federal accounting standard;
- U.S. Government Standard General Ledger at the Transaction Level;
- this is a core financial system, but does not address a FFMIA compliance area;
- Not a core financial system; does not need to comply with FFMIA

Section B: Summary of Funding (Budget Authority for Capital Assets)

1.

Table 1: SUMMARY OF FUNDING FOR PROJECT PHASES (REPORTED IN MILLIONS)
(Estimates for BY+1 and beyond are for planning purposes only and do not represent budget decisions)

	PY1 and earlier	PY 2009	CY 2010	BY 2011	BY+1 2012	BY+2 2013	BY+3 2014	BY+4 and beyond	Total
Planning:	*	*	*	*	*	*	*	*	*
Acquisition:	*	*	*	*	*	*	*	*	*
Subtotal Planning & Acquisition:	*	*	*	*	*	*	*	*	*
Operations & Maintenance:	*	*	*	*	*	*	*	*	*
Disposition Costs (optional):	*	*	*	*	*	*	*	*	*
SUBTOTAL:	*	*	*	*	*	*	*	*	*
Government FTE Costs should not be included in the amounts provided above.									
Government FTE Costs	*	*	*	*	*	*	*	*	*
Number of FTE represented by Costs:	*	*	*	*	*	*	*	*	*
TOTAL(including FTE costs)	*	*	*	*	*	*	*	*	*

2. If the summary of funding has changed from the FY 2010 President's Budget request, briefly explain those changes:

*

Section C: Acquisition/Contract Strategy (All Capital Assets)

1.

Table 1: Contracts/Task Orders Table

Contract or Task Order Number	Type of Contract/Task Order (In accordance with FAR Part 16)	Has the contract been awarded (Y/N)	If so what is the date of the award? If not, what is the planned award date?	Start date of Contract/Task Order	End date of Contract/Task Order	Total Value of Contract/Task Order (M)	Is this an Interagency Acquisition? (Y/N)	Is it performance based? (Y/N)	Competitively awarded? (Y/N)	What, if any, alternative financing option is being used? (ESPC, UESC, EUL, N/A)	Is EVM in the contract? (Y/N)
DTFAWA-03-C-00015	CPIF - ERAM Prime Contract (Lockheed Martin TSS). Awarded to date is $1,395.6M with a potential additional value of $102.5M in activities not yet negotiated. DME	Y	2002-12-10	2002-12-11	2021-12-31	$1,498.1	*	*	*	*	*
DTFAWA-03-C-00015	FPI - ERAM Prime Contract (Lockheed Martin TSS). Awarded to date is $25.0M. DME	Y	2002-12-10	2002-12-11	2021-12-31	$25.0	*	*	*	*	*
DTFAWA-03-C-00015	FFP - ERAM Prime Contract (Lockheed Martin TSS). Awarded to date is $57.6M . DME	Y	2002-12-10	2002-12-11	2021-12-31	$57.6	*	*	*	*	*
DTFAWA-03-C-00015	CPFF - ERAM Prime Contract (Lockheed Martin TSS). Awarded to date is $144.2M with a potential additional value of $28.8M in activities not yet negotiated. DME	Y	2002-12-10	2002-12-11	2021-12-31	$173.0	*	*	*	*	*
DTFAWA-03-C-00015	T&M - ERAM Prime Contract (Lockheed Martin TSS). Awarded to date is $44.2M. DME	Y	2002-12-10	2002-12-11	2021-12-31	$44.2	*	*	*	*	*
DTFAWA-03-C-00071	T&M - Technical Assistance Contract	Y	2003-04-22	2003-07-01	2011-02-28	$52.0	*	*	*	*	*

Table 1: Contracts/Task Orders Table

Contract or Task Order Number	Type of Contract/Task Order (In accordance with FAR Part 16)	Has the contract been awarded (Y/N)	If so what is the date of the award? If not, what is the planned award date?	Start date of Contract/Task Order	End date of Contract/Task Order	Total Value of Contract/Task Order (M)	Is this an Interagency Acquisition? (Y/N)	Is it performance based? (Y/N)	Competitively awarded? (Y/N)	What, if any, alternative financing option is being used? (ESPC, UESC, EUL, N/A)	Is EVM in the contract? (Y/N)
	(TAC2) Support to En Route Program Operations (NGIT). DME										
DTFAWA-08-C-00009	CPAF - NAS Implementation Support Contract II Bridge, Field Services (Lockheed Martin) which is a bridge to Contract DTFA01-98-C-00012 ($20.0M). DME	Y	2008-03-01	2008-03-01	2011-02-28	$6.5	*	*	*	*	*
DTFAWA-09-C-00012	T&M - En Route Information Systems Security Support. DME	Y	2008-12-29	2008-12-29	2013-12-28	$13.6	*	*	*	*	*
DTFAWA-08-C-00124	T&M - En En Route Performance Engineering II (AST). DME	Y	2008-10-06	2008-10-06	2012-10-05	$7.7	*	*	*	*	*
DTFAWA-C-00015	CPFF - Planned ERAM Maintenance and Second Level Engineering Support. O&M	Y	2007-10-01	2007-10-01	2012-10-01	$40.0	*	*	*	*	*

2. If earned value is not required or will not be a contract requirement for any of the contracts or task orders above, explain why:
*

3. Is there an acquisition plan which reflects the requirements of FAR Subpart 7.1 and has been approved in accordance with agency requirements? *

a. **If "yes," what is the date?** *

Section D: Performance Information (All Capital Assets)

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
2005	Reduced Congestion	*	*	Availability of weather service radar data to the Air Traffic Controllers during backup operations for planned and unplanned outages of the HOST system.	Current baseline is that no weather service radar data is provided while operating on backup system (DARC) during planned and unplanned outages of the HOST system.	EBUS backup system will provide weather service radar data. (Next Generation Radar (NEXRAD)). (Capability available at Denver ARTCC in April, 05).	Completed. EBUS is providing weather service radar data [Next Generation Radar (NEXRAD)] during periods of planned and unplanned outages of the HOST system as compared to no weather data for the system it replaced.
2005	Reduced Congestion	*	*	Availability of safety alerts during backup operations for planned and unplanned outages of the HOST system.	Current baseline is that no safety alerts are provided while operating on backup system (DARC) during planned and unplanned outages of the HOST system.	EBUS backup system will provide safety alert capability (Capability available at Denver ARTCC in April, 05).	Completed. EBUS is providing safety alerts as compared to no safety alerts for the system it replaced.
2005	Reduced Congestion	*	*	Maintenance Cost	Previous 12 months maintenance effort (Mean time to failure, number and length of service calls) as recorded in the Maintenance Management System (MMS) for the DARC system operation at Denver ARTCC.	EBUS will reduce the maintenance effort (Mean time to failure, number and length of service calls) per EBUS site fielded.	EBUS operational in FY05. Mean Time Between Corrective Maintenance Actions (MTBCMA) for EBUS decreased as reported in FY06 goal. Improvement as an increase in time between MTBCMA equates to less maintenance needed for EBUS than for DARC.
2005	Reduced Congestion	*	*	Number of maintenance actions required by the HOST backup system (DARC). (Note: Measurement Area re-categorized from BY 07 to better align with performance indicator). (Previously	DARC maintenance action baseline will be determined by analysis of the Maintenance Management System (MMS) by period (FY and month) and cause code for Denver ARTCC site.	EBUS will require less maintenance actions.	EBUS is operational at all 20 ARTCCs. The number of Corrective Maintenance Actions (CMAs) of DARC vs. EBUS decreased from 767 to 110 (greater than 5%) as reported in the FY06

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
				reported MA: Customer Results).			goal. A decrease in CMAs indicates less maintenance needed.
2005	Reduced Congestion	*	*	DARC (HOST backup system) Availability	DARC system availability is 0.995. Baseline value will be determined from analysis of the Operations Network (OPSNET) data.	EBUS Availability is 0.9998.	Completed. EBUS was accepted in FY05 and is now deployed and operational at all 20 ARTCCs. System testing confirmed the system was more reliable. EBUS system availability for unscheduled full interruptions measured in FY06 at 0.9999742.
2006	Reduced Congestion	*	*	Availability of weather service radar data (at all 20 ARTCCs) during planned or unplanned HOST system outages.	Current baseline is that no weather service radar data is available during planned or unplanned HOST system outages.	EBUS (backup system replacement) will provide weather service radar data (Next Generation Radar (NEXRAD)). (Capability available at initial five (5) ARTCCs by 10/05, and all twenty (20) ARTCCs in FY06.)	Completed. EBUS is providing NEXRAD weather data during periods of planned and unplanned outages of the HOST system as compared to no weather data for the system it replaced.
2006	Reduced Congestion	*	*	Availability of safety alerts (at all 20 ARTCCs) during backup operations for planned and unplanned outages of the HOST system.	Current baseline is that no safety alerts are provided while operating on backup system (DARC) during planned and unplanned outages of the HOST system.	EBUS backup system will maintain the capability achieved in 2005 of providing safety alert capability (100% improvement over the baseline) as provided while operating under the HOST system. (Capability available at all twenty (20) ARTCCs 3/01/06).	Completed. EBUS provides safety alerts during periods of planned and unplanned outages of the HOST system as compared to providing no safety alerts (100% improvement over the baseline) for the system it replaced.
2006	Reduced Congestion	*	*	Maintenance Cost	Previous 12 months maintenance	EBUS will reduce the maintenance	Completed. Mean-Time Between

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
					effort (Mean time to failure, number and length of service calls) as recorded in the Maintenance Management System (MMS) for the DARC system operation at Denver ARTCC.	effort (Mean time to failure, number and length of service calls) per EBUS site fielded. Baseline = 767 maintenance actions.	Corrective Maintenance Actions improved from 229 hours to 1012 hours, with maintenance actions reduced by 207 per site. Equates to less maintenance needed for EBUS vs. DARC with a savings of $11,921 per site.
2006	Reduced Congestion	*	*	Number of maintenance actions required by the HOST backup system (DARC). (Note: Measurement Area re-categorized from BY 07 to better align with performance indicator). (Previously reported MA: Customer Results).	DARC maintenance action baseline will be determined by analysis of the Maintenance Management System (MMS) by period and cause code for Denver ARTCC site.	EBUS will require less maintenance actions.	Completed. EBUS is deployed and operational at all 20 ARTCCs. The number of Corrective Maintenance Actions (CMAs) of DARC vs. EBUS decreased from 767 to 110 (greater than 5% reduction). Equates to less maintenance needed for EBUS vs DARC.
2006	Reduced Congestion	*	*	Time required for air traffic controllers to access aeronautical information (e.g. Notice to Airmen (NOTAMS), Pilot reports, aeronautical charts, etc.).	Current publications are only in hardcopy and can take up to 15 minutes to research and deliver the information to the pilot.	90% of data product requests satisfied within 5 seconds and data will be available for requests 7.5 minutes from the time it enters the center.	Completed. ERIDS Key Site IOC achieved 6/7/06 and 5 sec requirement was achieved in FY06. Data measurements and human factor studies validated the planned 7.5 min improvement to the baseline.
2006	Reduced Congestion	*	*	Availability of the HOST backup system (DARC) to support planned and unplanned outages of the primary HOST system.	DARC system availability is 0.995 at 20 sites. Baseline value will be determined from analysis of the Operations Network (OPSNET).	EBUS (backup system) availability is 0.9998 at all sites.	Completed. EBUS system availability for unscheduled full interruptions measured in FY06 at 0.9999742.
2007	Reduced Congestion	*	*	Increase availability of safety alerts during backup	EBUS is fully fielded and operation at all sites.	EBUS backup system will maintain the capability	Completed. EBUS is deployed and operational at

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
				operations for planned and unplanned outages of the HOST system.		achieved in 2005 of providing the Safety alert capability (100% improvement over the baseline) while operating under the HOST system.	all 20 ARTCCs. This goal was achieved in 2006 and will not be reported in BY 09 Exhibit-300 for FY07 and later years.
2007	Reduced Congestion	*	*	Reduced maintenance effort (Mean time to failure, number and length of service calls) of the backup system for HOST.	Previous 12 month maintenance effort (Mean time to failure, number and length of service calls) as recorded in the Maintenance Management System (MMS) for the DARC system operation at all EBUS sites.	Fielding of the EBUS system as replacement for DARC system will reduce the maintenance effort (by at least 10%) (Mean time to failure, length of service calls) per EBUS site fielded.	Completed. EBUS is deployed and operational at all 20 ARTCCs and goal achieved in FY06. Data collected verified that maintenance efforts reduced for EBUS by at least 10% over that of DARC
2007	Reduced Congestion	*	*	Number of maintenance actions required by the HOST backup system.	DARC maintenance action baseline will be determined by analysis of the Maintenance Management System (MMS) by period (FY and month) and cause code for all EBUS sites.	EBUS will cut maintenance actions by 5%.	Completed. Data collected verified that EBUS maintenance actions continued to be reduced by greater than 5%. Actual maintenance actions reduced by greater than 94%.
2007	Reduced Congestion	*	*	Time required for air traffic controllers to access aeronautical information (e.g. Notice to Airmen (NOTAMS), Pilot reports, aeronautical charts, etc.).	Current information can take up to 15 minutes to be available from the time requested to the time delivered.	90% of data product requests satisfied within 5 seconds and Data will be available for requests 7.5 minutes from the time it enters the center.	Completed. The 5 second requirement was validated during system testing in FY 06. Site analysis conducted in FY07 measured less than 7.5 minute operational response.
2007	Reduced Congestion	*	*	Increase the availability of the backup system to support planned and unplanned outages of the HOST system.	DARC system availability is 0.995 at 20 sites. Baseline value will be determined from analysis of the Operations Network (OPSNET).	EBUS (backup system) availability is 0.9998 at all sites.	Completed. EBUS system availability for unscheduled full interruptions in FY 06 greater than goal and continues to be greater than goal in FY 07.
2007	Reduced	*	*	Number of	Existing IT Host	Enhanced IT	Completed.

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	Congestion			Intrusion Detection/Audit Features	Security intrusion detection/audit features in Certification and Authorization Package (SCAP).	Host Security features in ERAM SCAP that includes intrusion detection, security audit features, and other state-of-the-art security requirements mitigating the risks identified.	System software development complete and Factory Acceptance Testing was completed in 2007. The enhanced security features are incorporated in the design. Final SCAP to validate completion will not be complete until first site IOC.
2007	Reduced Congestion	*	*	Availability of critical flight data processing (at all 20 ARTCCs)	Service availability for the critical flight data processing is 0.999.	Projected flight data processing service availability for ERAM is 0.99998.	Completed. System reliability, maintainability, availability analysis has validated this capability.
2007	Reduced Congestion	*	*	Number of Radar	HOST has 24 radar feeds.	ERAM will provide 64 Radars (at least a 50% improvement over the baseline) for increased radar coverage and expanded ATC services.	Completed. Testing and analysis confirmed the ability to feed up to 64 radars.
2007	Reduced Congestion	*	*	Number of Aircraft the Air Traffic Control Radar System Can Track.	Current system can track total 1100 aircraft.	ERAM will track total of 1900 aircraft (greater than a 70% improvement over the baseline).	Completed. Testing and analysis confirmed the ability to track 1900 aircraft.
2007	Reduced Congestion	*	*	External Data Sharing	HOST has no automated flight planning beyond center boundary.	ERAM Flight Data Processing capabilities enable aircraft flight planning region to extend 50 nm beyond ARTCC airspace boundary. ERAM provides 64 Radars for greater radar coverage/expanded ATC services.	Completed. Testing verified ability to extend coverage beyond ARTCC airspace greater than 50nm by 20%
2007	Reduced Congestion	*	*	Software Lines of Code (SLOC)	HOST has 2.9 Million Software Lines of Code	ERAM will have 1.3 Million software lines of	Completed. System software

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
					(SLOC) to be maintained.	developed software (50% reduction over the baseline) to be maintained.	development complete and Factory Acceptance Testing completed in 2007. System entered Factory test with approximately 1.2M SLOC of developed code.
2008	Reduced Congestion	*	*	Number of corrective maintenance actions by the HOST backup system (DARC).	DARC maintenance action baseline will be determined by analysis of the Maintenance Management System (MMS) by period (FY and month) and cause code for all EBUS sites. Baseline = 767 maintenance actions.	EBUS maintain maintenance actions at 5% lower than DARC.	Completed. Data collected verified that maintenance actions are still at least 5% lower than for DARC.
2008	Reduced Congestion	*	*	Time required to access NOTAMs.	Current NOTAMs can take up to 15 minutes to be available from the time requested to the time delivered.	90% of data product requests (acknowledged) satisfied within 5 seconds and Data will be available for requests 7.5 minutes (detailed response) from the time it enters the center.	Completed. The 5 second requirement was validated in FY 06. The 7.5 minute availability was validated in FY07 and revalidate in FY08. (This is an annual review/measurement.)
2008	Reduced Congestion	*	*	Availability of critical flight data processing	Service availability for the critical flight data processing is 0.999.	Projected flight data processing service availability for ERAM is 0.99998.	Data analysis validated that flight data processing availability as being in compliance with target. Additional testing (using data from all ARTCCs) to be completed by end of FY 10 to re-validate compliance with the target
2008	Reduced Congestion	*	*	Number of radars.	HOST has 24 radar feeds.	ERAM utilizes 64 ground radar sensors for increased radar coverage	Completed. Capability to accommodate up to 64 radar inputs validated

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
						(accuracy) and better aircraft position correlation that will allow the application of reduced aircraft separation minima and increase system capacity	in FY 07 prior to WJHTC Government Acceptance. (This is an annual measurement and review.)
2008	Reduced Congestion	*	*	Cost of Providing NOTAMs	ARTCC information processing costs for FY 07 (reproduction) costs at 20 ARTCCs and controller staff time used to maintain the data.	In FY 08, ERIDS will achieve cost savings (reproduction costs + avoided staff time hours) of at least $14.6M.	Completed. ERIDS is operational at all ARTCCs. Analysis report shows a cost savings in FY08 of $27.0M, surpassing the goal of $14.6M by 84.9%.
2008	Reduced Congestion	*	*	Number of Training Scenarios (Conducted)	Current Host training system can run only one instantiation (area) of the NAS system at a time.	ERAM training system can run 12 instantiations (areas) of simulation to support more robust test and training.	Completed. Measurement data from WJHTC Government Acceptance testing verified an improved ERAM test and training capability. Formal validation to occur in FY10 after deployment.
2008	Reduced Congestion	*	*	Data Storage (Capacity): Increase flight plan storage capability.	Current system can only store 2600 flight plans.	ERAM stores 7080 flight plans (100% improvement over the baseline).	Completed. Measurement data from WJHTC Government Acceptance testing validated that ERAM can store 7080 flight plans.
2008	Reduced Congestion	*	*	Flight Plan Route Conversion and Checks	Current system has limited flight plan route conversion and route checking against known restrictions within local ARTCC.	ERAM provides end to end flight plan route conversion and route checking against NAS-wide restrictions across all the ARTCCs.	Completed. Measurement data collected at the WJHTC Government Acceptance verified end to end route conversion capability.
2008	Reduced Congestion	*	*	Availability of Air Traffic Automation System to Support En Route	Current system has no fully functional backup.	ERAM provides redundant systems with full functionality (100% improvement	Completed. Measurement data verified a fully functional backup capability for the

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
				Operations.		over the baseline) to reduce any possibility of loss of service due to system outages.	ERAM system.
2009	Reduced Congestion	*	*	Number of corrective maintenance actions by the HOST backup system (DARC).	DARC maintenance action baseline determined by analysis of the Maintenance Management System (MMS) by period (FY and month) and cause code for all EBUS sites. Baseline is 767 maintenance actions.	EBUS maintain maintenance actions at 5% lower than DARC maintenance actions of 767.	Completed. Measurement results reported in 2007 validated EBUS has reduced corrective maintenance actions greater than 5%. FY08 data validated in FY09 continues to show EBUS maintenance actions decreased by greater than 5% over that for DARC.
2009	Reduced Congestion	*	*	Time required to access NOTAMs.	90% of data product requests satisfied within 5 seconds and Data will be available for requests 7.5 minutes from the time it enters the center.	90% of data product requests satisfied within 5 seconds and Data will be available for requests 7.5 minutes from the time it enters the center.	Site analysis conducted in FY09 verified that the NOTAM response times are being met. This is reviewed/measured annually for adherence to the 5 sec and 7.5 min standards.
2009	Reduced Congestion	*	*	Number of Intrusion Detection/Audit Features	Existing IT Host Security intrusion detection/audit features in Certification and Authorization Package (SCAP).	Enhanced IT Host Security features in ERAM SCAP that includes intrusion detection, security audit features, and other state-of-the-art security requirements mitigating the risks identified.	Enhanced IT security features validated in FY09 for the ERAM system installed at the Key Site.
2009	Reduced Congestion	*	*	Number of radars.	HOST has 24 radar feeds.	ERAM utilizes 64 ground radar sensors for increased radar coverage (accuracy) and better aircraft position correlation that will allow the application of reduced aircraft	Capability verified in FY 08 and confirmed at Key Site (defined as Initial Operating Capability) in FY 09 that ERAM has capability to interface with 64 radars.

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
						separation minima and increase system capacity	
2009	Reduced Congestion	*	*	Number of Training Scenarios (Conducted).	Current Host training system can run only one instantiation (area) of the NAS system at a time.	ERAM training system can run 12 instantiations (areas) of simulation to support more robust test and training. Goal/end result is increased training capability, flexibility and availability.	Capability verified at Key Site Government Acceptance with additional testing conducted in FY09 that continued to show the system can run 12 instantiations with more testing to be conducted in FY10 after IOC.
2009	Reduced Congestion	*	*	Intrinsic Levels of Security to protect critical ATC radar (surveillance and flight data processing) assets supporting the NAS that ensure safe, expeditious movement of En Route aircraft.	Current Host Computer System (HCS) security architecture	ERAM provides robust technology (and security architecture) with multiple levels of security mechanisms to introduce real and effective information security to the critical air traffic control system.	Capability available with multiple levels of security (defined as Initial Operating Capability) at Key Site in FY 09.
2010	Reduced Congestion	*	*	Number of corrective maintenance actions by the HOST backup system (DARC).	DARC maintenance action baseline will be determined by analysis of the Maintenance Management System (MMS) by period (FY and month) and cause code for all EBUS sites. Baseline is 767 maintenance actions.	EBUS maintain maintenance actions at 5% lower than DARC baseline of 767 .	Measurement results reported in 2007 validated EBUS has reduced corrective maintenance actions greater than 5%. FY09 data (measure the number of maintenance actions) to be evaluated in FY10.
2010	Reduced Congestion	*	*	Time required to access NOTAMs.	Current NOTAM information can take up to 15 minutes to be available from the time requested to the time delivered.	90% of data product requests satisfied within 5 seconds and Data will be available for requests 7.5 minutes from the time it enters the center.	Continue monitoring user surveys and site analysis conducted in FY 10 to verify the NOTAM response times validated in FY 09. (The target will always be the same.)
2010	Reduced	*	*	Availability	Service	ERAM	FY09 data will

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	Congestion				availability for HOST is 0.999.	availability will be a minimum of 10% greater improvement as compared to HOST.	be evaluated in FY10. (The target is always the same - 10% greater than Host baseline.)
2010	Reduced Congestion	*	*	Number of Radars	HOST has 24 radar feeds.	ERAM utilizes 64 ground radar sensors for increased radar coverage (accuracy) and better aircraft position correlation that will allow the application of reduced aircraft separation minima and increase system capacity	Capability to be available (defined as Initial Operating Capability) at 16 ARTCCs by the end of FY 10.
2010	Reduced Congestion	*	*	Number of Training Scenarios (Conducted)	Current Host training system can run only one instantiation (area) of the NAS system at a time.	ERAM training system can run 12 instantiations (areas) of simulation to support more robust test and training. Goal/end result is increased training capability, flexibility and availability.	Capability to be available (defined as Initial Operating Capability) at 16 ARTCCs by the end of FY 10.
2010	Reduced Congestion	*	*	Intrinsic Levels of Security to protect critical ATC radar (surveillance and flight data processing) assets supporting the NAS that ensure safe, expeditious movement of En Route aircraft.	Current Host Computer System (HCS) security architecture.	ERAM provides robust technology (and security architecture) with multiple levels of security mechanisms to introduce real and effective information security to the critical air traffic control system.	Capability to be available (defined as Initial Operating Capability) at 16 ARTCCs by the end of FY 10.
2011	Reduced Congestion	*	*	Number of corrective maintenance actions by the HOST backup system (DARC).	DARC maintenance action baseline will be determined by analysis of the Maintenance Management System (MMS) by period (FY and month) and cause code for all EBUS sites. Baseline is 767 maintenance	EBUS maintain maintenance actions at 5% lower than DARC baseline of 767.	Measurement results reported in 2007 validated EBUS has reduced corrective maintenance actions greater than 5%. FY10 data (maintenance actions) to be evaluated in FY11 to ensure maintenance

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
					actions.		actions are less for EBUS. Last site ORD is December 2010.
2011	Reduced Congestion	*	*	Time required to access NOTAMs.	Current NOTAM information can take up to 15 minutes to be available from the time requested to the time delivered.	90% of data product requests satisfied within 5 seconds and Data will be available for requests 7.5 minutes from the time it enters the center.	Continue monitoring user surveys and site analysis conducted in FY 11 to verify the NOTAM response times validated in FY 10.
2011	Reduced Congestion	*	*	Availability	Service availability for HOST is 0.999.	ERAM availability will be a minimum of 10% greater improvement as compared to HOST.	FY10 data will be evaluated in FY11.
2011	Reduced Congestion	*	*	Number of radars	HOST has 24 radar feeds.	ERAM utilizes 64 ground radar sensors for increased radar coverage (accuracy) and better aircraft position correlation that will allow the application of reduced aircraft separation minima and increase system capacity	Capability to be fully available of interfacing with 64 radars has been tested and will be re-validated (defined as Operational Readiness Demonstration) at all 20 ARTCCs by the end of FY 11.
2011	Reduced Congestion	*	*	Number of Training Scenarios (Conducted)	Current Host training system can run only one instantiation (area) of the NAS system at a time.	ERAM training system can run 12 instantiations (areas) of simulation to support more robust test and training.	Capability to be fully available of running 12 training instantiations has been tested and will be re-validated (defined as Operational Readiness Demonstration) at all 20 ARTCCs by the end of FY 11.
2011	Reduced Congestion	*	*	Intrinsic Levels of Security to protect critical ATC radar (surveillance and flight data processing) assets supporting the NAS that ensure safe,	Current Host Computer System (HCS) security architecture.	ERAM provides robust technology (and security architecture) with multiple levels of security mechanisms to introduce real and effective	Capability to have enhanced security protection has been tested and will be re-validated (defined as Operational Readiness Demonstration)

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
				expeditious movement of En Route aircraft.		information security to the critical air traffic control system.	at all 20 ARTCCs by the end of FY 11.
2012	Reduced Congestion	*	*	Time to deliver new software modules to a site.	Media mailed to sites and requires 2 to 3 days for delivery and installation.	Electronically transfer new software modules direct to Sites system making it available in less than 8 hours (greater than a 50% improvement over the baseline).	FY11 data to be evaluated in FY12.
2012	Reduced Congestion	*	*	Flight Delays	The average annual flight delays attributable to HOST, DSR, DARC/EBUS and URET systems for the period FY00-FY08.	10% fewer flight delays attributable to ERAM.	Actual results for those systems operational in FY11 will be evaluated in FY12.
2012	Reduced Congestion	*	*	Availability	Service availability for HOST is 0.999.	ERAM availability will be a minimum of 10% improvement as compared to HOST.	FY11 data to be evaluated in FY12 to re-validate target.
2012	Reduced Congestion	*	*	Number of days.	Each national software release requires each site to develop unique adaptation for that site before it can go operational on that build.	Common national adaptation accompanies each software release which requires minor modification for each site resulting in a 10% reduction in the cycle time to go operational.	Benchmark data to be gathered in FY08. FY11 data to be evaluated in FY12.
2013	Reduced Congestion	*	*	Number of days.	Each national software release requires each site to develop unique adaptation for that site before it can go operational on that build.	Common national adaptation accompanies each software release which requires minor modification for each site resulting in a 10% reduction in the cycle time to go operational.	Benchmark data to be gathered in FY08. FY12 data to be evaluated in FY13 to re-validate target.
2013	Reduced Congestion	*	*	Time to deliver new software modules to a	Media mailed to sites and requires 2 to 3	Electronically transfer new software	FY12 data to be evaluated in FY13 to

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
				site.	days for delivery and installation	modules direct to Sites system making it available in less than 8 hours (greater than a 50% improvement over the baseline).	re-validate target.
2013	Reduced Congestion	*	*	Availability	Service availability for HOST is 0.999.	ERAM availability will be a minimum of 10% improvement as compared to HOST.	FY12 data to be evaluated in FY13 to re-validate target.
2013	Reduced Congestion	*	*	Flight Delays	The average annual flight delays attributable to HOST, DSR, DARC/EBUS and URET systems for the period FY00-FY08.	10% fewer flight delays attributable to ERAM.	Actual results for those systems operational in FY12 will be evaluated in FY13 to re-validate target.
2014	Reduced Congestion	*	*	Number of days.	Each national software release requires each site to develop unique adaptation for that site before it can go operational on that build.	Common national adaptation accompanies each software release which requires minor modification for each site resulting in a 10% reduction in the cycle time to go operational.	Benchmark data to be gathered in FY08. FY13 data to be evaluated in FY14 to re-validate target.
2014	Reduced Congestion	*	*	Time to deliver new software modules to a site.	Media mailed to sites and requires 2 to 3 days for delivery and installation	Electronically transfer new software modules direct to Sites system making it available in less than 8 hours (greater than a 50% improvement over the baseline).	FY13 data to be evaluated in FY14 to re-validate target.
2014	Reduced Congestion	*	*	Availability	Service availability for HOST is 0.999.	ERAM availability will be a minimum of 10% improvement as compared to HOST.	FY13 data to be evaluated in FY14 to re-validate target.
2014	Reduced Congestion	*	*	Flight Delays	The average annual flight delays attributable to	10% fewer flight delays attributable to ERAM.	Actual results for those systems operational in

Table 1: Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
					HOST, DSR, DARC/EBUS and URET systems for the period FY00-FY08.		FY13 will be evaluated in FY14 to re-validate target.

Part II: Planning, Acquisition And Performance Information

Section A: Cost and Schedule Performance (All Capital Assets)

1. Comparison of Actual Work Completed and Actual Costs to Current Approved Baseline

Description of Milestones	Planned Cost ($M)	Actual Cost ($M)	Planned Start Date	Actual Start Date	Planned Completion Date	Actual Completion Date	Planned Percent Complete	Actual Percent Complete
Other - Pre-Contract Award FY02-FY03	$51.9	$51.9	2000-10-01	2000-10-01	2002-09-30	2002-09-30	100.00%	100.00%
Other - EBUS	$42.4	$42.3	2002-12-10	2002-12-10	2006-09-30	2006-09-30	100.00%	100.00%
(S20) - Contract Award	$2.2	$1.4	2002-11-10	2002-11-10	2002-12-10	2002-12-10	100.00%	100.00%
(S18) - Final Investment Decision	$63.4	$47.3	2002-12-10	2002-12-10	2003-06-12	2003-06-12	100.00%	100.00%
(S24) - Preliminary Design Review	$140.3	$108.0	2002-12-10	2002-12-10	2004-06-16	2004-07-02	100.00%	100.00%
(S25) - Critical Design Review	$107.9	$115.2	2004-06-17	2004-06-17	2005-03-07	2005-02-24	100.00%	100.00%
Other - Software Development Complete	$251.7	$166.1	2005-03-08	2005-03-08	2006-01-06	2005-12-01	100.00%	100.00%
Other - Hardware Purchases (Purchase ERAM 4 sets of equipment and deliver 3 sets for installation	$34.2	$51.7	2004-10-01	2004-10-01	2006-09-30	2006-09-30	100.00%	100.00%
Other - System Integration Planning and Execution	$185.9	$122.9	2006-01-07	2006-01-07	2006-09-30	2006-09-30	100.00%	100.00%
Other - System Integration Completion	$107.6	$100.8	2006-10-01	2006-10-01	2007-04-07	2007-03-01	100.00%	100.00%
Other - William J. Hughes Technical Center Government Acceptance Complete (Complete delivery of all equipment and complete installation at WJHTC)	$109.9	$129.8	2007-04-08	2007-04-08	2008-04-01	2007-10-01	100.00%	100.00%
Other - FY08	$80.6	$216.4	2007-10-01	2007-10-01	2008-09-30	2008-09-30	100.00%	100.00%

1. Comparison of Actual Work Completed and Actual Costs to Current Approved Baseline

Description of Milestones	Planned Cost ($M)	Actual Cost ($M)	Planned Start Date	Actual Start Date	Planned Completion Date	Actual Completion Date	Planned Percent Complete	Actual Percent Complete
Planning and Support for Other Development Activities								
Other - FY09 Planning and Support for Other Development Activities	$90.2	$182.1	2008-10-01	2008-10-01	2009-09-30	2009-09-30	100.00%	100.00%
(S43)- FY10 In-Service Decision	$21.7	$37.8	2009-10-01	2009-10-01	2009-12-31		100.00%	94.00%
(S47) - FY10 First Site Operational Readiness Decision	$21.7	$37.8	2009-10-01	2009-10-01	2009-12-31		100.00%	94.00%
Other - Deployment Planning and Hardware Purchases (Complete procurement of 3 ERAM systems)	$36.5	$18.9	2005-02-05	2005-02-05	2006-09-30	2006-09-30	100.00%	100.00%
Other - Hardware Purchases (Complete procurement of 11 ERAM systems and deliver 6 for installation)	$100.9	$53.6	2006-10-01	2006-10-01	2007-09-30	2007-09-30	100.00%	100.00%
Other - Deployment Planning and Installation/Testing Activities	$59.3	$41.8	2006-10-01	2006-10-01	2007-09-30	2007-09-30	100.00%	100.00%
Other - Hardware Purchases (Complete procurement of 8 remaining ERAM systems and deliver 16 for installation)	$138.6	$66.6	2007-10-01	2007-10-01	2008-09-30	2008-09-30	100.00%	100.00%
Other - Installation/Testing Activities (Complete installation of ERAM at 8 sites)	$115.8	$112.5	2007-10-01	2007-10-01	2008-09-30	2008-09-30	100.00%	100.00%
(S44) - Contractor Acceptance/Inspection	$114.4	$129.5	2008-10-01	2008-10-01	2009-09-30	2009-09-30	100.00%	100.00%

1. Comparison of Actual Work Completed and Actual Costs to Current Approved Baseline

Description of Milestones	Planned Cost ($M)	Actual Cost ($M)	Planned Start Date	Actual Start Date	Planned Completion Date	Actual Completion Date	Planned Percent Complete	Actual Percent Complete
(S46)- FY10 ERAM Release 3 Initial Operational Capability	$130.4	$91.8	2010-01-01	2010-01-01	2010-09-30		72.00%	72.00%
(S52) - FY11 Last Site Operational Readiness Decision	*	*	2010-10-01		2010-12-31		0.00%	0.00%
Other ?Post ORD Transition of all ARTCCs to ERAM	*	*	2011-01-01		2011-09-30		0.00%	0.00%
Other - Planning and Hardware Purchase	$30.5	$27.9	2003-10-01	2003-10-01	2006-09-30	2006-09-30	100.00%	100.00%
(S38) - ERIDS Key Site Initial Operational Capability	$3.1	$2.8	2005-10-01	2005-10-01	2006-07-31	2006-06-07	100.00%	100.00%
(S37) - ERIDS Independent Operational Test & Evaluation	$2.7	$2.5	2005-10-01	2005-10-01	2006-08-31	2006-06-30	100.00%	100.00%
(S40) - In-Service Decision	$2.0	$2.1	2005-10-01	2005-10-01	2006-09-30	2006-08-30	100.00%	100.00%
(S41) - First Operational Readiness Demonstration	$5.7	$5.2	2005-10-01	2005-10-01	2006-10-31	2006-08-30	100.00%	100.00%
(S52) - Last Site Operational Readiness Date	$18.7	$19.4	2006-10-01	2006-10-01	2007-12-17	2007-12-17	100.00%	100.00%
Other - In-Service Management in Support of Program Management, System Engineering, Integrated Logistics and Maintenance Support	$0.1	$5.6	2007-12-18	2007-12-13	2009-09-30	2009-09-30	100.00%	100.00%
O&M - FY03-FY08 In-Service Management Support	$20.8	$20.8	2003-01-01	2003-01-01	2008-09-30	2008-09-30	100.00%	100.00%
O&M - FY09 In-Service Management	$29.9	$29.9	2008-10-01	2008-10-01	2009-09-30	2009-09-30	100.00%	100.00%

1. Comparison of Actual Work Completed and Actual Costs to Current Approved Baseline

Description of Milestones	Planned Cost ($M)	Actual Cost ($M)	Planned Start Date	Actual Start Date	Planned Completion Date	Actual Completion Date	Planned Percent Complete	Actual Percent Complete
Support								
O&M - FY10 In-Service Management Support	$24.5	$18.4	2009-10-01	2009-10-01	2010-09-30		80.00%	80.00%
O&M - FY11 In-Service Management Support	*	*	2010-10-01		2011-09-30		0.00%	0.00%
O&M - FY12 In-Service Management Support	*	*	2011-10-01		2012-09-30		0.00%	0.00%
O&M - FY13 In-Service Management Support	*	*	2012-10-01		2013-09-30		0.00%	0.00%
O&M - FY14 In-Service Management Support	*	*	2013-10-01		2014-09-30		0.00%	0.00%
O&M - FY15-FY20 In-Service Management Support	*	*	2014-10-01		2020-09-30		0.00%	0.00%

* - Indicates data is redacted.